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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,879	11/27/2002	Christopher A. Newton	BUR920010144	5280
30449	7590	12/12/2003	EXAMINER	
SCHMEISER, OLSEN + WATTS SUITE 201 3 LEAR JET LATHAM, NY 12033			LUND, JEFFRIE ROBERT	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,879

Applicant(s)

NEWTON ET AL.

Examiner

Jeffrie R. Lund

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 17-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 112702. 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12, and 17-20, drawn to an etching apparatus, classified in class 156, subclass 345.34.
 - II. Claims 13-16, drawn to a method for etching a workpiece, classified in class 216, subclass 2+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group II and Group I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as supplying a wafer to be coated or etching a workpiece in a non-self-limiting etching method.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Jack P. Friedman on December 3, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12, 17-20. Affirmation of this election must be made by applicant in replying to

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this Office action. Claims 13-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "119" and "26" have both been used to designate the first layer of the wafer. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. The top surface of the electrostatic chuck 119 must be below the substrate it supports.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 65 and 70 of figure 4; θ_1 of figure 5; θ of figure 6A; and θ_2 of figure 6B. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: all of the various angles labeled "angle I" in all of its various forms. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

9. A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because of minor errors, (for example in paragraph 0024 "FIG. 7" should start a new paragraph, in paragraph 0033 line 11 "81.Referring" should be --81. Referring--, and in paragraph 0053 line 11 "thecenter" should read --the center--) and numerous typographical errors. The typographical errors are found throughout the specification and on most pages. The typographic errors appear to be related to special symbols (a few examples of this can be found in paragraph 0029 "100A°C or "58a,,<<", in paragraph 0037 line 11, in paragraph 0041, in paragraph 0044 lines 11-13, in paragraph 0047, in the equations of paragraph 0059 and 0060)

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and (c).

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 3 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not describe the offset of the angle, i.e. how it is done or why it is done, in such a way to enable one skilled in the art to make or use the invention.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 5-7, 11, 12, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitani et al, JP 3-281780.

Mitani et al teaches the an apparatus that includes a chamber 15 adapted for holding a workpiece having a surface layer; a gas distribution plate 112 with a first plurality of channels with a first angle of 90 degrees in a first groove 22 for providing a first fluid to the chamber and a second plurality of channels with a second angle of 90 degrees in a second groove 23 for providing a second fluid to the chamber. The channels are arranged in rings around a common center point of the distribution plate.

The workpiece is separated from the gas distribution plate a distance of 3/16 to 9/16 of an inch. The rings have a diameter of more than 1.75 inches to about 7.04 inches. The grooves have a greater volume than the channels. The channels are arranged in a circle. The specific gas supplied by the apparatus is an intended use of the apparatus and the apparatus of Mitani et al is inherently capable of supplying the required gases. (Figures 1 and 2 and throughout the specification)

14. Claims 1, 7, 12, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al, US Patent 5,624,498.

Lee et al teaches the an apparatus that includes a chamber 12 adapted for holding a workpiece having a surface layer; a gas distribution plate 320 with a first plurality of channels with a first angle of 90 degrees for providing a first fluid to the chamber and a second plurality of channels with a second angle of 90 degrees for providing a second fluid to the chamber. The channels are arranged in rings around a common center point of the distribution plate. The channels are arranged in a square. The specific gas supplied by the apparatus is an intended use of the apparatus and the apparatus of Lee et al is inherently capable of supplying the required gases. (Figures 1 and 3 and throughout the specification)

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2, 3, 9, 10, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al in view of Deacon et al, US Patent 5,792,269.

Mitani et al was discussed above.

Mitani et al differs from the present invention in that Mitani et al does not teach an angle of 45 to less than 90 degrees, an annular ring constricting the exhaust gases between the ring's edge and the wall of the chamber, or the size of the constriction.

Deacon et al teaches channels 41 that are angled at 72 degrees, and includes an annular ring (baffle plate) constricting the exhaust gases between the ring's edge and the wall of the chamber.

The motivation for angling the channels of Mitani et al is to improve step coverage as taught by Deacon et al. The motivation for adding the annular ring is to improve the uniformity of the exhaust gas flow by providing a restricted area that equalizes the suction applied by the vacuum pump to the chamber. The motivation for making the constriction at least 3/8 of an inch is to optimize size of the constriction. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to angle the channel of Mitani et al, and add the annular constricting ring of the correct size to the apparatus of Mitani et al, as taught by Deacon et al.

17. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al in view of Plavidal et al, US Patent 5,718,795.

Mitani et al was discussed above.

Mitani et al differs from the present invention in that Mitani et al does not teach that the dispersion plate is made of polytetrafluoroethylene.

Plavidal et al teaches that the dispersion plate is made of polytetrafluoroethylene (Teflon®) (column 4 lines 48-49).

The motivation for making the dispersion plate out of polytetrafluoroethylene is to provide a material of construction, which is required but not disclosed by Mitani et al. Polytetrafluoroethylene is well known in the art and is used because it is chemically inert.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the dispersion plate of Mitani et al out of polytetrafluoroethylene as taught by Plavidal et al.

18. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al in view of Hasegawa et al, US Patent 5,837,093.

Mitani et al was discussed above.

Mitani et al differs from the present invention in that Mitani et al does not teach an annular ring that includes a plurality of holes extending over an exhaust port.

Hasegawa et al teaches an annular ring 29 that includes a plurality of holes 30 extending over an exhaust port 31.

The motivation for adding the annular ring with a plurality of holes of Hasegawa et al in the apparatus of Mitani et al is to improve the uniformity of the flow across the wafer and to the exhaust port, thereby improving the uniformity of the processed wafer.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add annular ring of Hasegawa et al to the apparatus of Mitani et al.

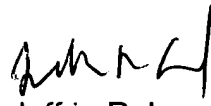
Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 102 or 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication of references. (See MPEP 707.07(g))

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (703) 308-1796. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
December 7, 2003